To: Stover - DNR, Bruce[bruce.stover@state.co.us]
From: Way, Steven
Sent: Thur 6/5/2014 6:02:02 PM
Subject: RE: Gold King - Portal / Structural sets - steel rings

Bruce,

Thanks for the information – that helps clarify some things. I guess I need to circle back with Todd regarding the bracing components.

Steve

From: Stover - DNR, Bruce [mailto:bruce.stover@state.co.us]
Sent: Thursday, June 05, 2014 11:03 AM
To: Way, Steven
Cc: Sorrenson - DNR, Allen
Subject: Re: Gold King - Portal / Structural sets - steel rings

Steve,

These are pre-curved (formed or rolled) steel beams with end plates that are bolted together to form either an arch "cap" section set on straight steel beam "posts"/legs, or alternatively, a full 360-degree circular "ring" to support the entire circumference of the heading in really soft of squeezing ground.

Once the arches or rings are bolted in place, heavy lagging is placed into the slots along the ribs and back

formed by the beam webs/flanges to support the back and ribs in between each set or ring. There are also usually steel braces bolted between each set or ring, usually at collar and knee level.

This system is pretty "Cadillac" for AML investigations- its much more expensive than standard straight steel beam stock used to make steel "square-sets", but it has much better weight holding capacity per lb of steel due to the higher strength of the arch/ ring geometry. If you can get your hands on this stuff for free, it should be the way to go.

The length of your advance with a given number of sets/rings will depend on ground conditions, which will dictate the necessary spacing between each set/ring for the wood lagging to sufficiently support the back and ribs in between.

On Thu, Jun 5, 2014 at 10:37 AM, Way, Steven <way.steven@epa.gov> wrote:

Bruce and Allen,

What is your experience with or knowledge of using steel “lining rings” to create the portal structure supports? Apparently, there is enough for 100 ft, if we provide the lagging.

Thanks,

Steve

P.S. apparently the newer adit has the draining / pipe closure and the older adit is a lower elevation.

Steven Way

Federal On-Scene Coordinator

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US EPA - Region 8

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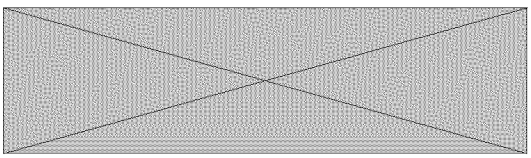
Bruce K. Stover
Director
Inactive Mine Reclamation Program



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